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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/605,766 06/28/00 HAWKINS G 99,215-A

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EXAMINER

SIEW, J

ART UNIT

PAPER NUMBER

1656

DATE MAILED:

09/24/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/605,766

Applicant(s)

George Hawkins

Examiner

Jeffrey Siew

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a) because they fail to show certain elements as described in the specification e.g. on page 23 line 11 scanner element 36 is not listed in Drawings Figure 10A-10C. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Correction is required. Applicant is advised that all element parts described in specification are listed in appropriate Figures.

Claim Objections

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim 5a been renumbered 6 and subsequent claims corrected.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29

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USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-33 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-33 of copending Application No. 09/464490. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1-33 of the instant application are drawn to an apparatus wherein the a volume is enclosed by flexible layer and first substrate surface and further comprise a first and second port. Claims 1-14, 18-27 & 29-32 of US09/464490 are drawn to an apparatus with a layer of water soluble compound in between first surface and flexible layer and claim 15 is drawn to two ports. Claims 1-32 of US 09/464490 are drawn to a species of the genus claims of the instant application. The species renders the genus obvious.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

3. Claim 34 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 33 of copending Application No. 09/464490. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 34 of the instant application is drawn to apparatus with

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microscope slide, biomolecules, layer of polyvinylidene chloride, layer of polyethylene glycol, reflective layer, layer of parylene and resistive heater. Claim 33 of 09/464490 is drawn to apparatus with microscope slide, biomolecules, layer of polyvinylidene chloride, layer of polyethylene glycol, reflective layer, layer of parylene and resistive heater and foil tape. Claim 33 of 09/464490 is a species that renders the genus claim 34 of the instant application obvious.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

4. Claim 35 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 34 of copending Application No. 09/464490. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 35 of the instant application is drawn to apparatus with microscope slide, biomolecules, layer of polyvinylidene chloride, layer of polyethylene glycol, reflective layer, layer of parylene, resistive heater, case, cavity and carriage. Claim 34 of 09/464490 is drawn to apparatus with two ports, microscope slide, biomolecules, layer of polyvinylidene chloride, layer of polyethylene glycol, reflective layer, layer of parylene, resistive heater, case, cavity and carriage. Claim 34 of 09/464490 is a species that renders the genus claim 35 of the instant application obvious.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 24,25 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A) The term "scanner" in claims 24 & 25 lacks antecedent basis.

B) The term "the resistive heater" lacks antecedent basis in claim 20.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-3,8-12 & 16-18 rejected under 35 U.S.C. 102(e) as being anticipated by over Besemer et al (US5,945,337 Aug. 31, 1999).

Besemer et al teach a chip device containing a substrate having an array of probes attached to cavity (see whole document esp. col. 1 line 65- col.2 line 3 & claim 1 & 2). The body includes two inlets that allow fluids into and through cavity. A seal, plug or any other seal may be provided for each inlet to retain fluid within cavity (see col. 6 line 39). The body is formed by welding two pieces together. They teach that substrate may be attached by adhesive (see col. 1 line 67). A top casing is used which may be of any various known plastics including TEFLON or polyethylene (see col. 9 line 16). They teach an annular port that allows fluid to flow through (see figure 36 & col. 12 line 18-19). They also teach heaters may be connected to device(col. 9 line 62). They teach a cover composed of transparent material that is mated to surface with an adhesive (see col. 18 lines 1-5).

7. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Besemer et al (US5,945,334 Aug. 31, 1999) in view of Van Antwerp et al (Us5,786,439 July 28, 1998).

Besemer et al teach a chip device containing a substrate having an array of probes attached to cavity (see whole document esp. col. 1 line 65- col.2 line 3 & claim 1 & 2). The body includes inlets that allow fluids into and through cavity. A seal, plug or any other seal may be provided for each inlet to retain fluid within cavity (see col. 6 line 39). The body is formed by welding two pieces together. They teach that substrate may be attached by adhesive (see col. 1 line 67). A top casing is used which may be of any various known plastics including TEFLON or polyethylene (see col. 9 line 16). They teach an annular port that allows fluid to flow through (see figure 36 & col. 12 line 18-19). They also teach heaters may be connected to device(col. 9 line 62).

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Besemer et al do not teach the claimed layer of water soluble compound.

Van Antwerp et al teach coating the surface of biosensor with uniform hydrogel (see whole doc. esp. abstract). The hydrogel may be PEG 600(see claim 10).

One of ordinary skill in the art would have been motivated to apply Antwerp PEG-600 coatings to Besemer et al's chip array in order to protect the array from interfering chemicals. Antwerp et al state that the hydrogel layer protects from interfering chemicals such as electrolytes and proteins but allows water to pass through to allow the arrays to accurately measure analyte (see column 1 lines 46-50). It would have been prima facie obvious to apply Antwerp et al's hydrogel to Besemer et al's chip device in order to allow Besemer et al's array to accurately measure analyte without interference from other chemicals.

8. Claims 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Besemer et al (US5,945,337 Aug. 31, 1999) in view of Mirzabekov et al (US5,905,024 May 18, 1999).

The teachings of Besemer et al are described previously.

Besemer et al do not teach polyacrylamide gel pad.

Mirzabekov et al teach the use of polyacrylamide gel matrices for constructing probe arrays (see whole doc. esp. col. 4 line 51-61).

One of ordinary skill in the art would have been motivated to apply Mirzabekov et al's teaching of gel pads to Besemer et al's probe in order to immobilize the oligonucleotides onto specific locations that are spatially separate. It was well known in the art at the time of the invention to employ gel pads to immobilize oligonucleotide probes for arrays. It would have

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been prima facie obvious to apply Mirzabekov et al's gel pads to spatially mobilize probes in Besemer et al's chips in order to immobilize the arrays into specific locations on the surface.

9. Claims 22 & 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Besemer et al (US5,945,337 Aug. 31, 1999) in view of Chavan et al (US6,109,113 Aug. 29, 2000).

The teachings and suggestions of Besemer et al are described previously.

Besemer et al do not teach parylene.

Chavan et al teach a parylene layer in a silicon device (see col. 7 line 62 -68).

One of ordinary skill would have been motivated to apply Chavan et al's parylene layer to Besemer et al's device to protect against water. It would have been prima facie obvious to apply Chavan et al's parylene layer to Besemer et al's chip device in order to make the device water resistant.

10. Claims 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Besemer et al (US5,945,337 Aug. 31, 1999) in view of Phillips et al (US6171793 Jan 9, 2001)

The teachings of Besemer et al are described previously.

Besemer et al do not teach scanner.

Phillips et al teach a scanner to detect gene probe array (see whole doc. esp. col. 6 line 34-42).

One of ordinary skill in the art at the time of the invention was made would have been motivated to apply Phillips et al's scanner to Besemer et al's chip in order to detect bound analytes. As it was well known and practiced in the art to utilize fluorescent probes and labels in

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hybridization reactions, it would have been prima facie obvious to apply Phillips et al's scanner to detect and record the hybridization reactions of Besemer et al's probes.

11. Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Besemer et al (US5,945,334 Aug. 31, 1999) in view of Li et al (US5960014 Sept. 28, 1999).

The teachings Besemer et al are described previously.

Besemer et al do not teach resistive heater.

Li et al teach a thin film resistor for heating in integrated circuits (see whole doc. esp. abstract).

One of ordinary skill in the art would have been motivated to apply Li et al's thin film resistor to Besemer et al's chip device in order to directly heat the chamber. It would have been prima facie obvious to apply Li et al's resistive heater layer to Besemer et al's chip device so that direct heating of the chamber would allow accurate control of temperature reactions.

SUMMARY

12. No claims allowed.

CONCLUSION

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Siew whose telephone number is (703) 305-3886 and whose e-

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mail address is Jeffrey.Siew@uspto.gov. The examiner can best be reached on Monday through Thursday from 6:30 a.m. to 4 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones, can be reached on (703)-308-1152.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist for Technology Center 1600 whose telephone number is (703) 308-0196.

Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CM1 Center numbers for Group 1600 are Voice (703) 308-3290 and Fax (703) 308-4556 or (703) 308-4242.


Jeffrey Siew

March 21, 2001